life.augmented

STM32® 32-bit MCU family

Leading supplier of ARM® Cortex®-M microcontrollers

By choosing one of ST's microcontrollers for your embedded application, you gain from our leading expertise in MCU architecture, technology, multi-source manufacturing and long-term supply

The STM32® portfolio offers an extraordinary variety of options, now including ARM® Cortex®-M cores (M0, M0+, M3, M4 and M7), giving developers flexibility to find the perfect STM32 for their applications. Particular attention is paid to accommodate porting of applications from one device to another. The binary compatibility combined with the similar pinout assignment, hardware IPs proliferation and higher level programming language makes the development job far more convenient when dealing with the STM32 families.

HIGH-PERFORMANCE

STM32 F7 STM32 F4 STM32 F2

HIGH DEGREE OF INTEGRATION AND RICH CONNECTIVITY

- **STM32F7**: very high performance MCUs with advanced features
  Cortex®-M7 with 512 Kbytes to 1 Mbyte of Flash
- **STM32F4**: from access to the high performance up to advanced features with DSP and FPU instructions
  Cortex®-M4 with 128 Kbytes to 2 Mbytes of Flash
- **STM32F2**: mid-range MCUs with excellent price-performance ratio
  Cortex®-M3 with 128 Kbytes to 1 Mbyte of Flash

MAINSTREAM

STM32 F3 STM32 F1 STM32 F0

SCALABLE SET OF MCUs FOR A LARGE VARIETY OF APPLICATIONS

- **STM32F3**: upgraded F1 series with various level of advanced analog peripherals
  Cortex®-M4 with 16 to 512 Kbytes of Flash
- **STM32F1**: foundation series based on Cortex-M3 from 16 Kbytes to 1 Mbyte of Flash
- **STM32F0**: entry-level MCUs extending to 8-/16-bit world
  Cortex®-M0 with 16 to 256 Kbytes of Flash

ULTRA-LOW-POWER

STM32 L4 STM32 L1 STM32 L0

TINY POWER BUDGET APPLICATIONS

- **STM32L4**: excellence in ultra-low-power with performance
  Cortex®-M4 with 128 Kbytes to 1 Mbyte of Flash (100 DMIPS/273 CoreMark)
- **STM32L1**: market-proven answer for 32-bit applications
  Cortex®-M3 with 32 to 512 Kbytes of Flash
- **STM32L0**: perfect fit for 8-/16-bit applications and cost-down designs
  Cortex®-M0+ with 16 to 192 Kbytes of Flash

STM32® THE LEADING CORTEX-M PORTFOLIO

Common core peripherals and architecture:	High-performance									
	STM32F7 series – Very high performance with DSP and FPU (STM32F7x6)									
Communication peripherals: USART, SPI, I²C	200 MHz Cortex-M7 CPU	Up to 1-Mbyte Flash	Up to 336-Kbyte SRAM	2x USB 2.0 OTG FS/HS	3x 16-bit advanced MC timer	2x CAN CEC FMC	SDIO 2x I²S audio Camera IF	Crypto Ethernet IEEE 1588 2x SAI	LCD-TFT SDRAM I/F Quad SPI SPDIF input	STM32 F7
Multiple general-purpose timers	STM32F4 series – High performance with DSP and FPU (STM32F401/411/405-415/407-417/427-437/429-439 and STM32F446)									
	Up to 180 MHz Cortex-M4 DSP/FPU	Up to 2-Mbyte Flash	Up to 256-Kbyte SRAM	2x USB 2.0 OTG FS/HS	3x 16-bit advanced MC timer	2x CAN CEC F(S)MC	SDIO 3x I²S audio Camera IF	Crypto Ethernet IEEE 1588 2x SAI	LCD-TFT SDRAM I/F Quad SPI SDIF input	STM32 F4
Integrated reset and brown-out warning	STM32F2 series – High performance (STM32F2x5 and 2x7)									
	120 MHz Cortex-M3 CPU	Up to 1-Mbyte Flash	Up to 128-Kbyte SRAM	2x USB 2.0 OTG FS/HS	3x 16-bit advanced MC timer	2x CAN 2.0B FSMC	SDIO 2x I²S audio Camera IF	Crypto Ethernet IEEE 1588		STM32 F2
Multiple DMA	Mainstream									
2x watchdogs Real-time clock	STM32F3 series – Mixed-signal with DSP (STM32F301/302/303/334/373/3x8)									
	72 MHz Cortex-M4 with DSP/FPU	Up to 512-Kbyte Flash	Up to 80-Kbyte SRAM CCM-RAM	USB 2.0 FS	3x 16-bit advanced MC timer	CAN CEC FSMC	7x comparator 4x PGA	HR-Timer	3x 16-bit ΣΔ ADC	STM32 F3
Integrated regulator PLL and clock circuit	STM32F1 series – Mainstream (STM32F100/101/102/103 and 105-107)									
	Up to 72 MHz Cortex-M3 CPU	Up to 1-Mbyte Flash	Up to 96-Kbyte SRAM	USB 2.0 OTG FS	2x 16-bit advanced MC timer	2x CAN CEC FSMC	SDIO 2x I²S audio	Ethernet IEEE 1588		STM32 F1
Up to 3x 12-bit DAC	STM32F0 series – Entry-level (STM32F0x0/0x1/0x2 and 0x8)									
	48 MHz Cortex-M0 CPU	Up to 256-Kbyte Flash	Up to 32-Kbyte SRAM 20-byte backup data	USB 2.0 FS device Crystal less	CAN CEC	DAC Comparator				STM32 F0
Up to 4x 12-bit ADC (Up to 5 MSPS)	Ultra-Low-Power									
	STM32L4 series – Ultra-Low-Power (STM32L4x6)									
Main oscillator and 32 kHz oscillator	80 MHz Cortex-M4 CPU	Up to 1-Mbyte Flash	Up to 128-Kbyte SRAM	USB 2.0 OTG FS	2x 16-bit advanced MC timer	LCD up to 8x40	Op-amps comparator	FSMC SDIO CAN DFSDM	AES 256-bit T-RNG 2 x SAI	STM32 L4
	STM32L1 series – Ultra-Low-Power (STM32L100/151-152/162)									
Low-speed and high-speed internal RC oscillator	32 MHz Cortex-M3 CPU	Up to 512-Kbyte Flash	Up to 80-Kbyte SRAM	Up to 16-Kbyte EEPROM	USB 2.0 FS Device	LCD up to 8x40	Op-amps comparator	FSMC SDIO	AES 128-bit	STM32 L1
	STM32L0 series – Ultra-Low-Power (STM32L0x1/0x2/0x3)									
-40 to +85 °C and up to 125 °C operating temperature range	32 MHZ Cortex-M0+ CPU	Up to 192-Kbyte SRAM	Up to 20-Kbyte SRAM	Up to 6-Kbyte EEPROM	USB 2.0 FS device Crystal less	LCD 8x40 4x52	T-RNG comparator	LP Timer LP UART LP 12-bit ADC	AES 128-bit	STM32 L0
Low voltage 2.0 to 3.6 V or 1.65/1.7 to 3.6 V (depending on series)										
Temperature sensor										

SIL Ready

www.st.com/stm32safety

ST MCU Finder

Free mobile application to find the right STM32 MCU

www.st.com/stmcufinder

LONGEVITY 10 YEARS COMMITMENT

STM32 ECOSYSTEM

Hardware tools

STM32 Nucleo board

Flexibility prototype

Discovery kit

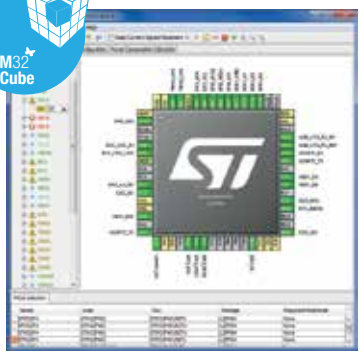
Creative demos

Evaluation board

Full-feature evaluation

Software tools

STM32CubeMX



Partners IDEs

ARM KEIL Microcontroller Tools

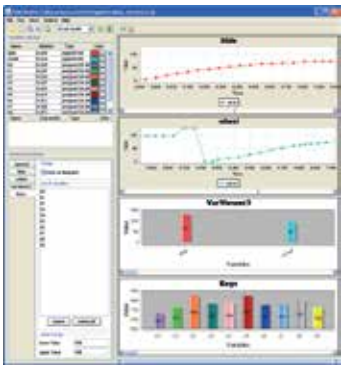
IAR SYSTEMS

AC6 Assistance Conseil Systèmes

GCC

Note: Free full version of Keil MDK-ARM on all STM32F0 and STM32L0

STMStudio



Configure and generate code

Compile and debug

Monitor

Embedded software

STM32Snippets
www.st.com/stm32snippets

STM32Cube
and Std Libraries
www.st.com/stm32cube

CMSIS and
Mbed SDK
www.mbed.org

STM32Java

Virtual machines
and models
www.st.com/stm32-java

High optimization
low portability

Average optimization
STM32 portability

Low optimization
ARM portability

Low optimization
large portability